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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,602	12/22/2003	Christopher P.J. Kelly	10030726-1	7550

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AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

EXAMINER

WALLING, MEAGAN S

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	Application No. 10/743,602	Applicant(s) KELLY, CHRISTOPHER P.J.	
	Examiner Meagan S. Walling	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 and 17-45 is/are allowed.
- 6) ☒ Claim(s) 9 is/are rejected.
- 7) ☒ Claim(s) 10-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Eastman et al. (US 5,436,880).

Regarding claim 9, Eastman et al. teaches measuring a first average voltage of the first test waveform (See Fig. 2(a) and column 7, lines 33-35); calculating a first peak voltage of the first test waveform (Fig. 2(a), Ref. A<sub>+</sub>); measuring a second average voltage of the second test waveform (See Fig. 2(b) and column 7, lines 33-35); calculating a second peak voltage of the second test waveform (Fig. 2(b), Ref. A<sub>+</sub>); using the first peak voltage and the second peak voltage, calculating the rate of change of voltage in a falling portion of the waveform (column 3, lines 26-27); and normalizing the rate of change of voltage to a value representative of a definition of fall time to obtain a fall time calibration point (column 15, lines 19-22).

### *Allowable Subject Matter*

2. Claims 10-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of allowability of claim 10 is the inclusion of the limitation that the first test waveform and the second test waveform have rise times that are insignificant with respect to the first pulse width and the second pulse width, respectively. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 11 is the inclusion of the limitation that the first and second test waveforms may have any shape capable of being adequately represented mathematically. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 12 is the inclusion of the limitation that any number of fall times may be calculated by repeated application of the procedure. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 13 is the inclusion of the limitation of performing the method at any time to obtain more updated fall time calibration points. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 14 is the inclusion of the limitation of generating one or more fall time calibration points; storing the one or more fall time calibration points; and when a different fall time is required using the one or more fall time calibration points to generate the different fall time. It is this limitation in the claimed

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combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 15 is the inclusion of the limitation that the method nullifies one or more adverse effects of fall time errors due to environmental variations and component aging. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 16 is the inclusion of the limitation of configuring a pulse generator to output the first test waveform, of first pulse width and a known pulse period; and configuring the pulse generator to output the second test waveform, of second pulse width and the pulse period. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

3. Claims 1-8 and 17-45 are allowed.

The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claim 1 is the inclusion of the limitation of measuring a first average voltage of the first test waveform; calculating a first peak voltage of the first test waveform; measuring a second average voltage of the second test waveform; calculating a second peak voltage of the second test waveform; using the first peak voltage and the second peak voltage, calculating the rate of change of voltage in a rising portion of the waveform; normalizing the rate of change of voltage to a value representative of a definition of rise time to

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obtain a rise time calibration point. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the allowance of claim 17 is the inclusion of the limitation of measuring a first average voltage of a first waveform; calculating a first peak voltage of the first waveform; measuring a second average voltage of a second waveform; calculating a second peak voltage of the second waveform; using the first peak voltage and the second peak voltage to calculate a first rate of change of voltage in a rising portion of the waveform; normalizing the first rate of change of voltage to a value representative of a definition of rise time to obtain a rise time calibration point; measuring a third average voltage of a third waveform; calculating a third peak voltage of the third waveform; measuring a fourth average voltage of a fourth waveform; calculating a fourth peak voltage of the fourth waveform; calculating the fall time; using the third peak voltage and the fourth peak voltage to calculate a second rate of change of voltage in a falling portion of the waveform; and normalizing the second rate of change of voltage to a value representative of a definition of fall time to obtain a fall time calibration point. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the allowance of claim 18 is the inclusion of the limitation of a pulse generator which accepts digital inputs and outputs analog pulses; a rise time circuit capable of modifying the rise time of an analog input received from the pulse generator; a lowpass filter coupled to the rise time circuit; a conversion device coupled to the lowpass filter for converting analog to digital; a controller capable of accepting digital inputs and supplying digital outputs, which is capable of mathematical computations; and an interface circuit between the controller

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and the rise time circuit; wherein the lowpass filter generates an average voltage of a waveform produced by the pulse generator and having a rise time supplied by the rise time circuit; wherein the controller calculates a rise time calibration point of the waveform from the average voltage of the waveform and a mathematical description of the waveform; and wherein the controller is operable to control the rise time circuit to change the rise time of the waveform in accordance with the rise time calibration point. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the allowance of claim 27 is the inclusion of the limitation of a pulse generator which accepts digital inputs and outputs analog pulses; a fall time circuit capable of modifying the fall time of an analog input received from the pulse generator; an lowpass filter coupled to the fall time circuit; a conversion device coupled to the lowpass filter for converting analog to digital; a controller capable of accepting digital inputs and supplying digital outputs, which is capable of mathematical computations; and an interface circuit between the controller and the fall time circuit; wherein the lowpass filter generates an average voltage of a waveform produced by the pulse generator and having a fall time supplied by the fall time circuit; wherein the controller calculates a fall time calibration point of the waveform from the average voltage of the waveform and a mathematical description of the waveform; and wherein the controller is operable to control the fall time circuit to change the fall time of the waveform in accordance with the fall time calibration point. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the allowance of claim 36 is the inclusion of the limitation of a pulse generator which accepts digital inputs and outputs analog pulses, a rise time circuit capable

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of modifying the rise time of an analog input received from the pulse generator', a fall time circuit capable of modifying the fall time of an analog input received from the pulse generator', a lowpass filter coupled to the rise time and fall time circuits', a conversion device coupled to the lowpass filter for converting analog to digital', a controller capable of accepting digital inputs and supplying digital outputs, which is capable of mathematical computations; a first interface circuit between the controller and the rise time circuit; a second interface circuit between the controller and the fall time circuit; wherein to measure fall times the lowpass filter generates an average voltage of a first waveform produced by the pulse generator and having a fall time supplied by the fall time circuit; wherein the controller calculates a fall time calibration point of the first waveform from the average voltage of the first waveform and calculates the peak voltage of the first waveform from a mathematical description of the first waveform, and wherein the controller is operable to control the fall time circuit to change the fall time of a first future waveform in accordance with the fall time calibration point; and wherein to measure rise times the lowpass filter generates an average voltage of a second waveform produced by the pulse generator and having a rise time supplied by the rise time circuit; wherein the controller calculates a rise time calibration point of the second waveform from the average voltage of the second waveform and calculates the peak voltage of the second waveform from a mathematical description of the second waveform, and wherein the controller is operable to control the rise time circuit to change the rise time of a second future waveform in accordance with the rise time calibration point. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meagan S. Walling whose telephone number is (571) 272-2283. The examiner can normally be reached on Monday through Friday 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

msw

  
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